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(54) Input systems and keyboards for ideographic characters

(57) A method of ideographic character input for a processing system comprises identifying, from a predetermined system of component symbols, such as the Jackson system, for inseparable ideographic characters, the fewest component symbols and their sequence up to the first four and the last component symbols contained in the ideographic character. A code, representative of the inseparable ideographic character, is then formed in dependence upon the identified component symbols. For separable ideographic characters, left and right components are identified, the left smaller than the right if they contain differing numbers of component symbols, and then at least the first component symbol in the left component and up to the first two and the last component symbols of the right component are identified. A code, representative of the separable ideographic character, is then formed in dependence upon the identified component symbols. The codes are then fed into a processing system. The component symbols may correspond to the letters of the Roman alphabet so that the ideographic characters can be coded on an English language 'QWERTY' type keyboard. Keyboard layouts are shown (Figs. 4–6).

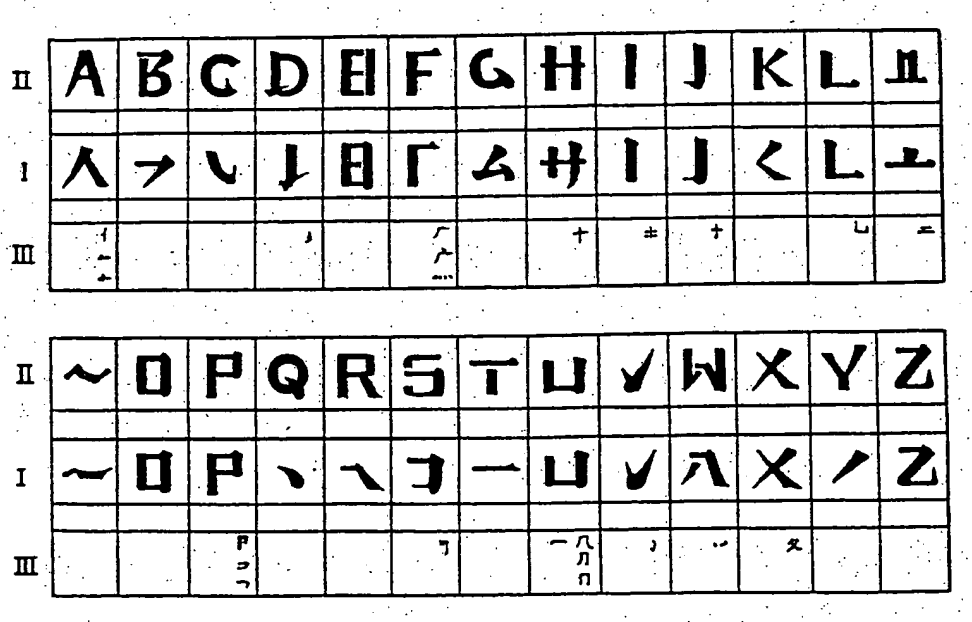

FIG.1.

GB 2 195 040 A

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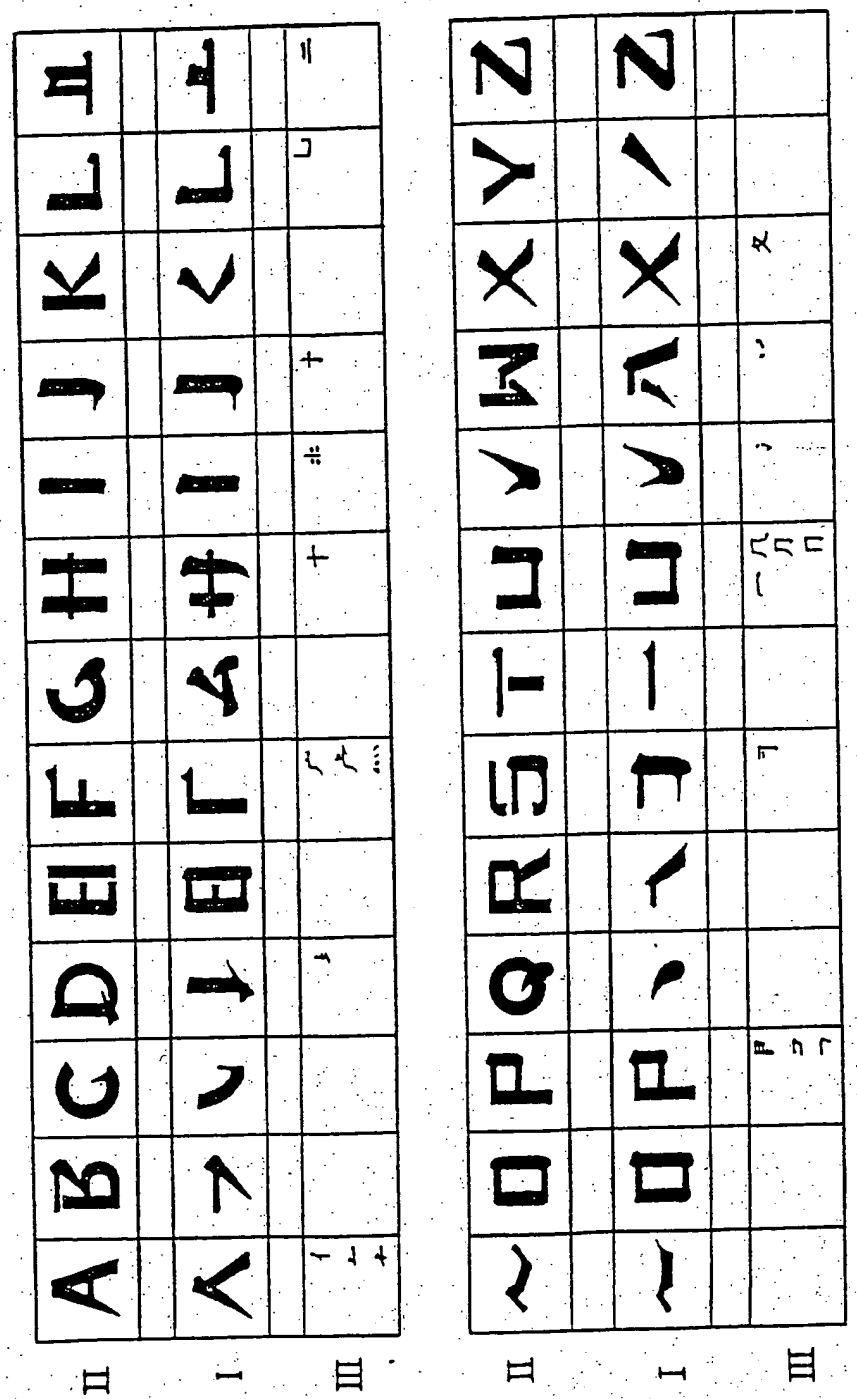

FIG. 1.

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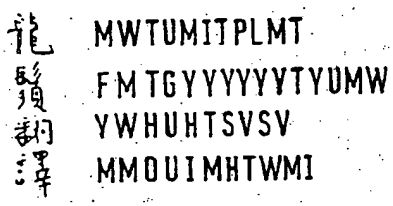


FIG. 2a.

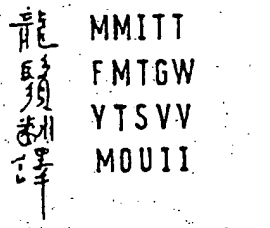


FIG. 2b.

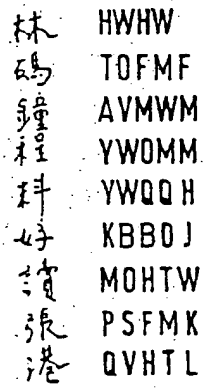


FIG. 2c.

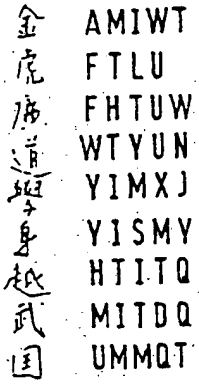


FIG. 2d.

JAPANESE	JACKSON LETTER CODE
ア	BY
イ	A
ウ	QU
ヴ	QUF
エ	TM
オ	JY
カ	SY
ガ	SYF
キ	MC
ギ	MCF
ク	YB
グ	YBF

FIG.3a.

KOREAN	JACKSON LETTER CODE
ㄱ	P
ㄴ	L
ㄷ	TL
ㄹ	PL
ㅇ	O
ㅅ	HT
ㅏ	A
ㅓ	IQ
ㅗ	IQQ
ㅜ	QI
ㅡ	QQI
ㅣ	M

FIG.3b.

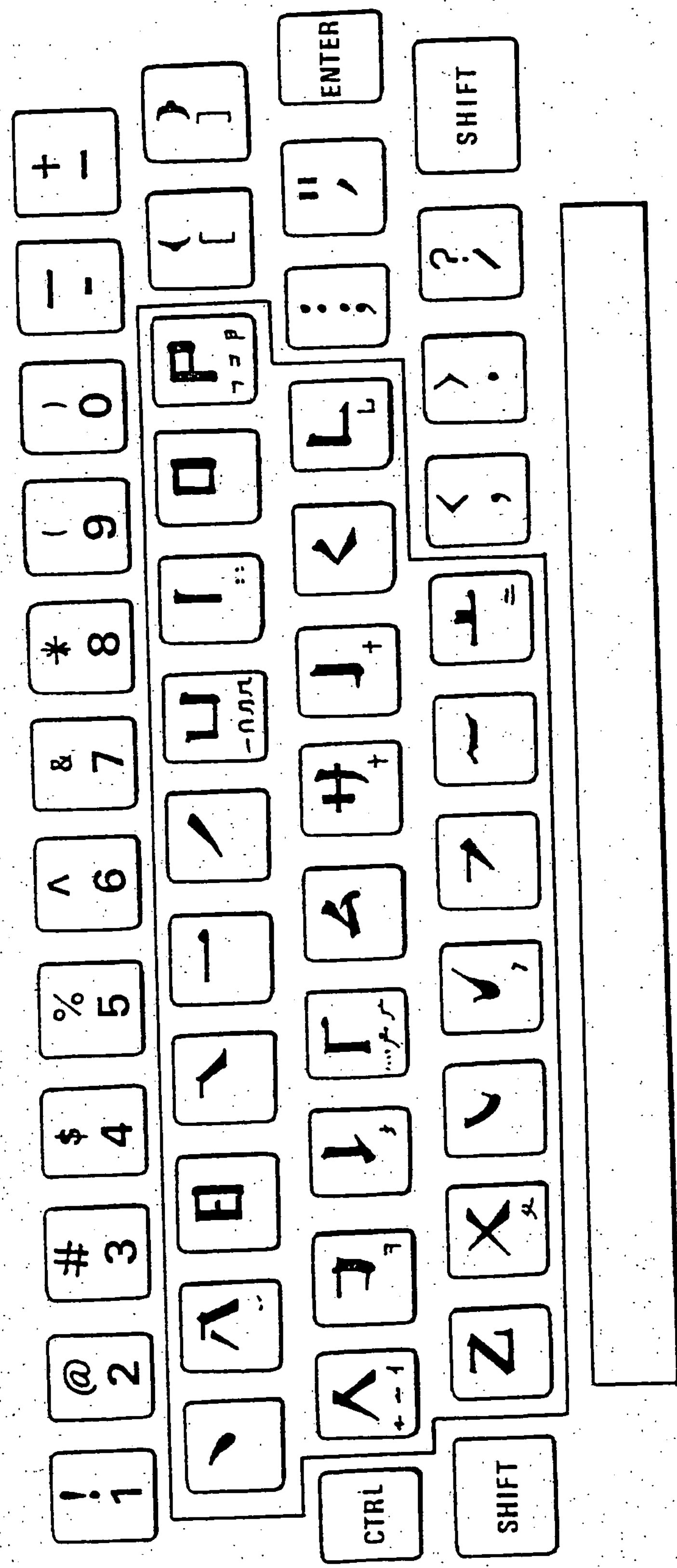


FIG. 4.

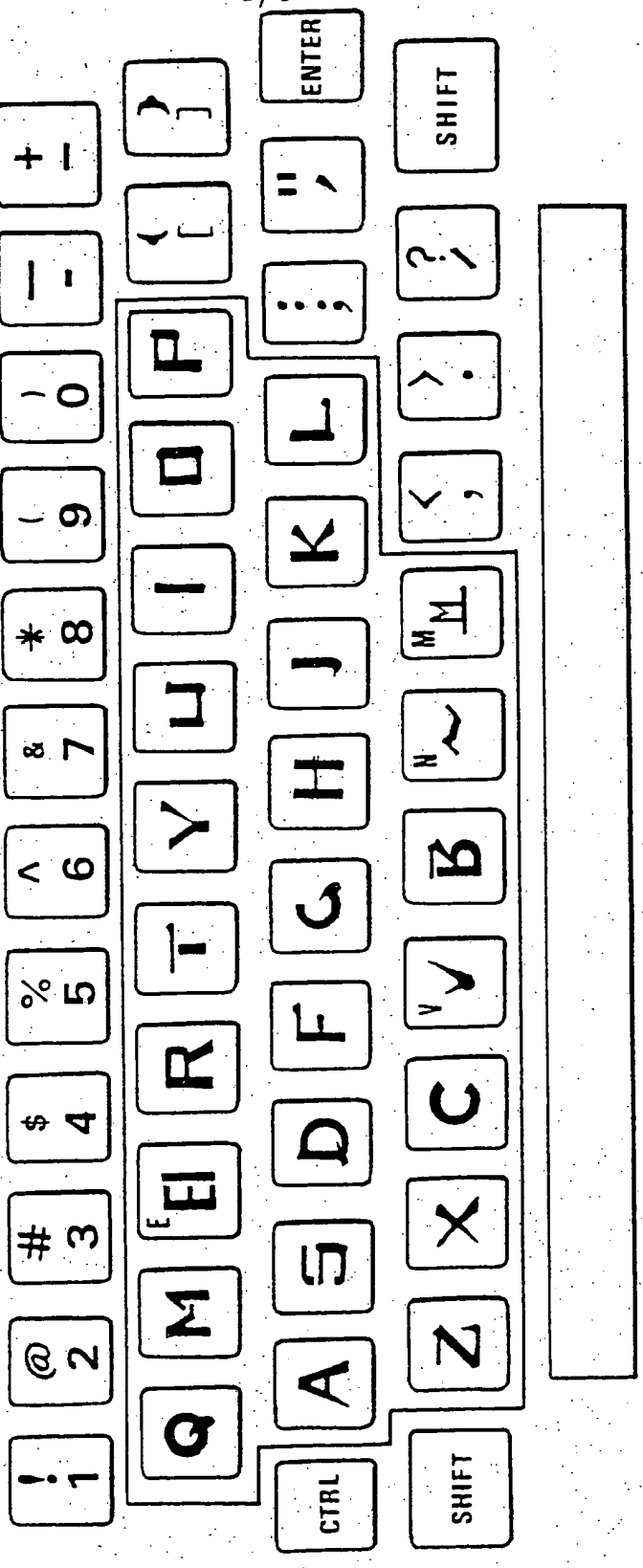

! 1
@ 2
# 3
$ 4
% 5
^ 6
& 7
* 8
(9
) 0
_ -
+ =
Q
W
E
R
T
Y
U
I
O
P
{ [
}]
CTRL
A
S
D
F
G
H
J
K
L
: ;
" '
ENTER
SHIFT
Z
X
C
V
B
N
M
< ,
> .
? /
SHIFT

FIG.5.

2195040

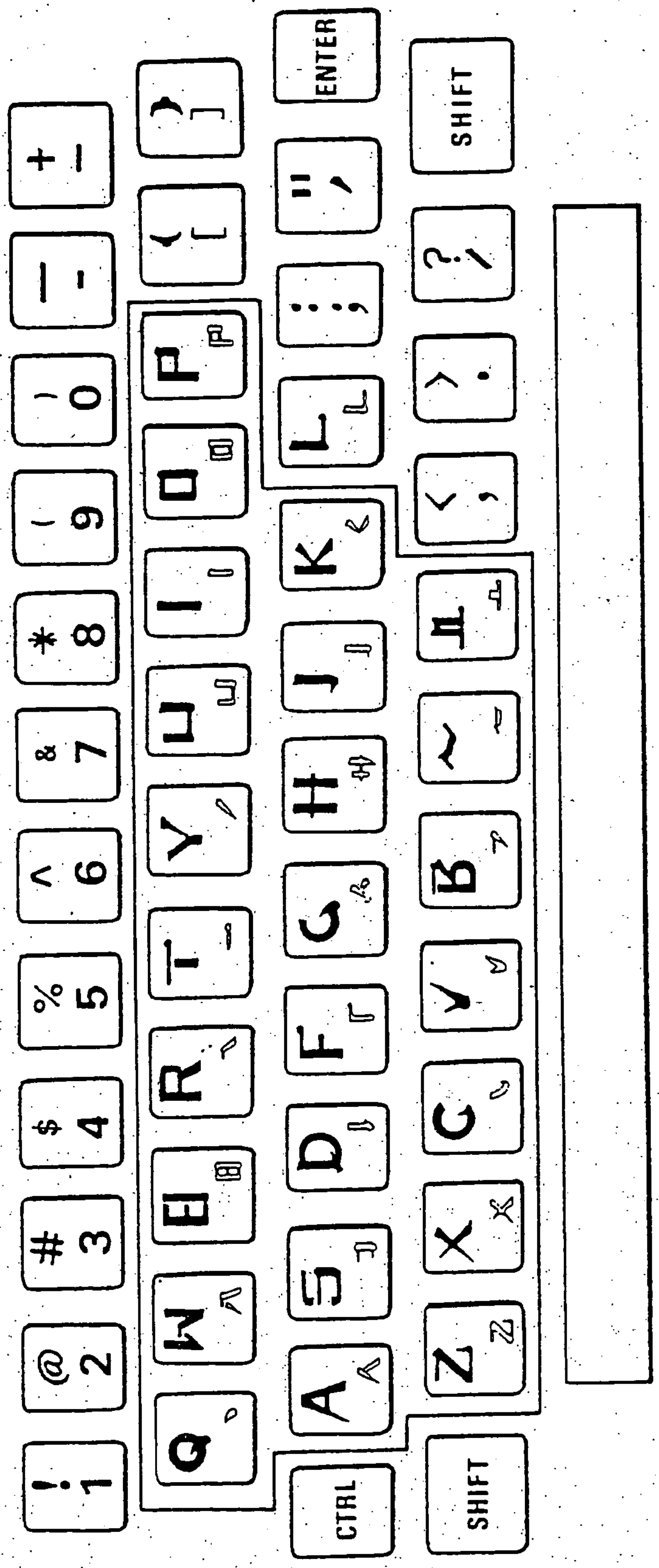


FIG.6.

SPECIFICATION

Input systems and keyboards for ideographic characters

This invention relates to input systems and keyboards for ideographic characters. In particular, the invention relates to input systems and to keyboards for word processors for the input of codes which represent characters of a language such as Chinese into the word processors.

Many different types of input systems based on various coding methods and systems of component symbols have been proposed for word processing in the Chinese language. Most of these input systems use the English language typewriter keyboard (that is, the QWERTY type layout) as the input device, and the coding methods are based on pronuciation, character shapes or the assignment of numbers or codes to individual characters or components.

Existing coding methods are disadvantageous because the number of Chinese characters which can be processed using the known systems of component symbols without redundancy or ambiguity is restricted by the limited number of keys on the QWERTY keyboard. This is due, at least in part, to the fact that known systems of components symbols do not provide a particularly systematic and efficient way of decomposing and forming ideographic characters. Attempts have been made to improve these coding methods by imposing rules and restrictions, but so far these have tended to make the resulting input system difficult to operate.

A prior art input system for Chinese characters is described in an article entitled "An Intelligent Chinese Input System" by Loh Shiu Chang et al. This article was published in the Hong Kong Computer Journal This input system is based on an analysis of the structural characteristics of about 16,000 Chinese characters and their frequencies of usage. Resulting from the analysis are 526 character components which are classified according to: whether they are independent (that is, ones which themselves form part or whole of a character) or dependent (ones which are not independent); their usual position within a composed Chinese character; and the types of the first stroke from which they are made.

This prior art input system uses a keyboard which has 256 keys where more than one character component shares a single key so that all of the character components can be accommodated. The character components are positioned on the keyboard according to their classification.

The keyboard is associated with computer hardware which is programmed to access any of the Chinese characters stored in the computer memory in dependence upon combinations of keys selected by the operator.

This input system is disadvantageous because it relies on a special keyboard having 256 keys which makes the system cumbersome and complex to operate.

It is an aim of the present invention to provide an input system which uses simpler coding methods, a keyboard which employs a systematic and efficient system of component symbols which results in less ambiguity and redundancy, and which enables word processing of ideographic characters. Further, it is an aim of the present invention to provide a keyboard having a system of component symbols which fits in with the characteristics of the words of phonetic languages.

According to the present invention there is provided a method of ideographic character input for a processing system comprising:

identifying from a predetermined system of component symbols, for inseparable ideographic characters, the fewest component symbols and their sequence of up to the first four and the last component symbols contained in the ideograpic character;

forming a code representative of the inseparable ideographic character in dependence upon the identified component symbols;

identifying from the predetermined system of component symbols, for separable ideographic characters, left and right components wherein the left component is smaller than the right component if they contain differing numbers of component symbols, and then identifying at least the first component symbol contained in the left component and up to the first two and the last component symbols of the right component;

forming a code representative of the separable ideographic character in dependence upon the

identified component symbols; and

feeding the codes into a processing system.

In the case where the left component of the separable ideographic character has more than one component symbol, the first and last symbols are preferably identified and the code is formed in dependence thereon.

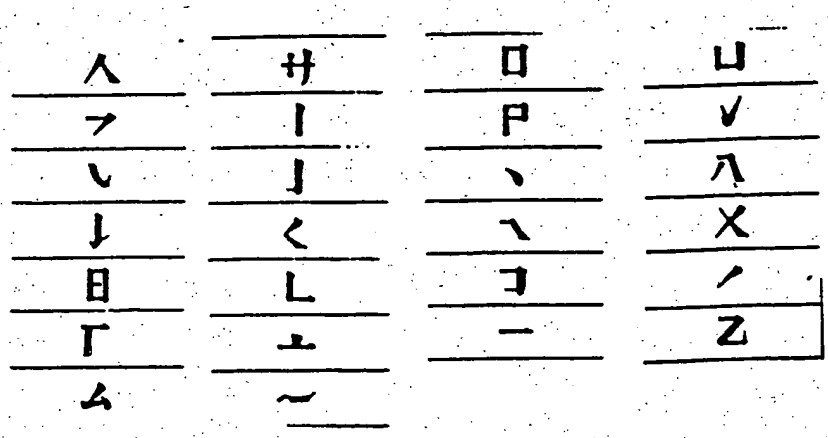
The code representative of the inseparable or separable characters preferably consists of five or fewer code symbols depending on the number of identified component symbols in the character.

The predetermined system of component symbols is preferably a "Jackson system" which provides for the coding of ideographic characters.

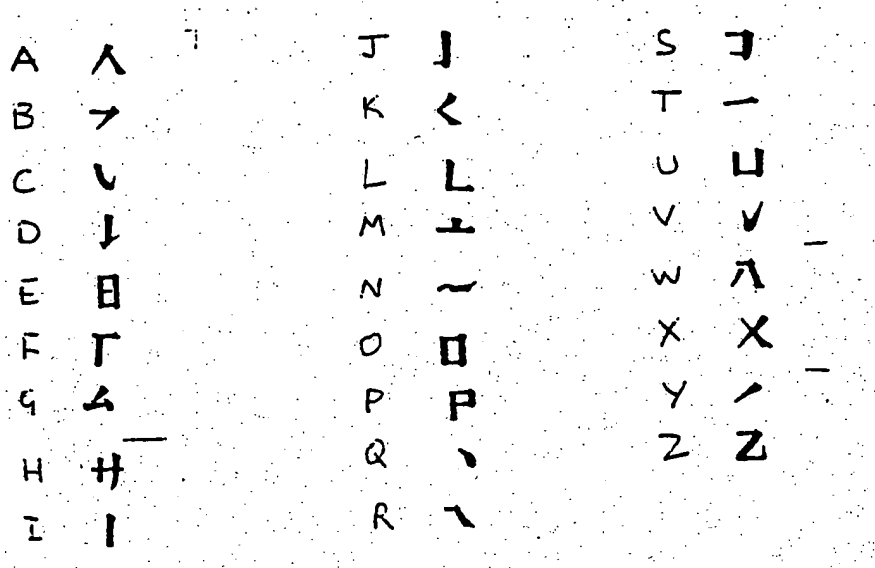
The component symbols of the "Jackson system" may correspond to the letters of the Roman alphabet so as to enable the ideographic characters to be coded on an English language "QWERTY" type keyboard.

The ideographic characters may be those of the Chinese, Japanese or Korean languages.

According to the present invention there is further provided a keyboard for use in an input system for ideographic characters, wherein the keyboard comprises a predetermined system of component symbols whereby codes representative of the ideographic characters may be fed into a word or data processing system, and wherein the component symbols are:



The component symbols may respectively correspond to the letters of the Roman alphabet and their correspondence with the Roman alphabet may be as follows:



The ideographic characters may be those of the Chinese language.

Some of the component symbols of the predetermined system may be substituted with different component symbols according to the Table below thereby enabling the ideographic characters to be those of the Japanese or Korean languages. In this case, some of the keys of the keyboard may have more than one component thereon.

ROMAN LETTER	COMPONENT SYMBOL	SUBSTITUTED SYMBOL
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		
L		
M		

ROMAN LETTER	COMPONENT SYMBOL	SUBSTITUTED SYMBOL
N		
O		
P		
Q		
R		
S		
T		
U		
V		
W		
X		
Y		
Z		

The keyboard preferably corresponds to the QWERTY type keyboard thereby enabling both ideographic and phonetic languages to be processed.

Embodiments of the present invention are advantageous because they enable ideographic languages as well as phonetic languages to be word processed on a standard QWERTY type keyboard while being relatively simple to operate. Further, redundancies, and ambiguities associated with previous systems are reduced.

The invention will now be further described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a system of component symbols;

Figure 2a shows examples of Chinese characters coded according to the system of Fig. 1;

Figure 2b shows examples of Chinese characters coded in accordance with the present invention;

Figure 2c shows examples of the coding of separable characters according to the present invention;

Figure 2d shows examples of the coding of inseparable characters according to the present invention;

Figure 3a shows further component symbols for the coding of Japanese characters;

Figure 3b shows further component symbols for the coding of the Korean language;

Figure 4 shows a keyboard according to a first embodiment of the present invention;

Figure 5 shows a keyboard according to a second embodiment of the present invention; and

Figure 6 shows a keyboard according to a third embodiment of the present invention.

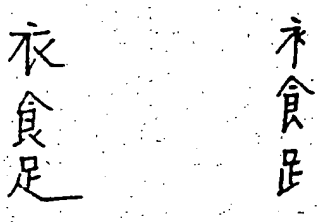
First, a system of component symbols, for use in association with a QWERTY type keyboard, and its derivation will be described.

Ideographic languages such as Chinese are formed from a combination of character compo-

nents such as a series or pieces of visible symbolic pictures. This contrasts with the construction of words of phenetic languages which are formed from a serial combination of alphabetical letters. There are three fundamental principles behind the analysis of Chinese language characters, namely, structure of the character, standard of components, and sequence of components.

A structural analysis of 7,254 Chinese characters provides for a further clarification of the language into independent characters and dependent characters. Independent characters are ones which cannot be visibly separated, while dependent characters can be further catagorised into left-right, upper-lower and outer-inner structures. However, basing a system of component symbols on this criteria alone can be to clumsy and so further simplification is necessary.

According to statistics, left-right structures represent 64.2 percent (4,655) of the Chinese characters. Hence, it is possible to classify the Chinese characters into two simpler groups, namely, one with left-right structures called separable characters and the other with non left-right structures called inseparable characters. Inseparable characters experience no transformation in their component strokes no matter whether they be in an upper-lower position or outer-inner position. However, if the inseparable character forms the left component of a separable character then there will be a transformation in its strokes, for example:



The method of separable and inseparable classification forms the basis of the system of component symbols shown in Fig. 1.

The second of the fundamental principles of analysis of the characters of Chinese relates to the standard of components. This principle is based on the notion of repeatability and correctness of the stroke contained within characters. That it to say, whether or not and to what extent the strokes are standard. The stroking of modern Chinese characters has evolved from various traditions such as Dazhuan, Xiauzhuan, to Caosh. However, the Kaishu standard of stroking characters has become highly popular and in fact the meaning of the word Kaishu is tidiness and adherence to rules. The system of component symbols shown in Fig. 1 are derived therefore from the Kaishu standard of the Chinese character.

Most people may have confusion over the strokes '丨' and '亅' in characters as 木、禾、未、朱、and 小、少、省、示、系-etc. How in fact is the use of '丨' and '亅' delimited? The scientific approach to this problem is that the stroke without a hook '丨' will be used whenever a character is associated with '木' e.g.木、禾、未、朱、. It will also be used where the associated character '小' is an upper component e.g.少、省、尚、堂. The stroke will be without a hook in all these cases. However, where the associated character '小' is a lower component, e.g.示、系、等、etc, the stroke with a hook will be used.

The third fundamental principle relating to the sequence of components will now be described.

Less emphasis had also been placed on the sequence of character component symbols in the past. Most renowned authorities in calligraphy such as Ngan顏, Liu柳, Au歐, So蘇 simply stressed the aesthetics or beauty of characters without realising the importance of their sequence.

Most characters in the world's languages broadly fall into two categories. One, named 'Horizontal-linear structure' is simpler with alphabets arranged from left to right. The other is called 'Stratum-square structure' which means a character is formed by layering the components in a square shape. Even though there have been certain rules of component-sequencing to follow, e.g. from top to bottom, from left to right, from outer to inner, etc., they are not scientific enough and there may be conflicts among them. Some examples can illustrate this:

If we apply the 'from top to bottom' rule, the character '中' should be formed by first writing the component '丨' followed by '口'; 表 by first writing '丨' followed by '一'; 存 by first writing '𠂇' and then '一'; However, the traditional sequence is writing the component '一' first. If the 'from left to right' rule is applied, characters such as 道 and 延 should be formed by first writing '辶' and '廴' followed by '首' and '𠂢' respectively. Still, the traditional sequence is the contrary. Similarly, for the 'from outer to inner' rule to apply the characters '國' and '區' are formed by first writing '口' and '匚' followed by '或' and '品' respectively. Analyses of the sequence of the components of many characters have revealed that the rules are not in accordance with the traditional sequence, and that they need to be revised in order to be scientific.

i) Appendix to the 'from top to right' rule—
first '一' then '丨'
first '𠂇' then '丶'
first '亠' then '𠂇'

ii) Appendix to the 'from left to right' rule—
first '丨' then '丶'
first right then '辶'

iii) Appendix to the 'from outer to inner' rule—
first '冂' then top bottom
first '亠' then '匚'

The establishment of a sound system of character has relieved Chinese character from its long history of entanglement. It is from this system that the twenty-six symbols of the system of component symbols shown in row I of Fig. 1 are ultimately induced—to be named "JACKSON 26'. This system provides for a form of Chinese alphabet which is compatible with phonetic languages such as English. The correspondence of the Jackson system with the 26 letters of the Roman alphabet is illustrated in rows I and II of Fig. 1.

The relationship between the symbols of Jackson 26, the Chinese language and the Roman alphabet is as follows:

A= 𠂉

The first letter is '𠂉'. Among Chinese characters '人', '𠂉', '亻', and '𠂆' are of the same class. The English alphabet 'A" is assigned to represent Jackson's first Chinese letter '人' because they look almost alike if a dash is put inside the letter '人';

B= 𠂇

Examples of Chinese characters associated with the second letter '𠂇' include '尺', '𠂋', '定', '今' etc. It is represented by 'B' due to its similar shape to the right top corner of the latter;

C= 乚

The third letter '乚' is named 'right curved hook' (右弯钩) due to its shape. It is commonly used as the second stroke in characters such as '戈' and '心', and as the last stroke for such words as '氏' and '民';

D= 丨

This letter is named 'vertical right hook' 竖勾. It is the first stroke of the character '比', and the second stroke of '氏' and '民'. Adding a horizontal stroke '一' on it will come to '十' which is the character '土' as left component;

E= 日

The letter can be applied to '日' as well as '曰'. The alphabet 'E' is arrived at by removing the right vertical stroke from the character '日';

F= 𠂆

The sixth letter is called 'left top corner 左上角' and is the character component for '長','馬','髮', etc. '𠂆' has three fellow components, namely '广' (e.g. '廣'), '疒' (e.g. '病') and '灬' (e.g. '庶'). The component '灬' is in the same class represented by 'F' because 'F' is the first alphabet for the word 'fire'. In Chinese character '灬' is the representation of the word fire 火;

G= 𠂇

This letter is called 'zigzag-dot' (曲點) and is commonly used as the first stroke in such characters as '𠂇', '良', etc., and as the last stroke in '公';

H= 艹

This is the abbreviation of the Chinese character (usually called '草花頭' in Chinese) and is one of the most frequently used components in Chinese character. It is used as the first stroke in '花', '華', '共' etc., and as the last stroke in '扁'. Cutting it into halves will arrive at '十', which is the first stroke of '土', '走', etc., and the last stroke of '牛';

I= 丨

This is the 'vertical stroke' (豎) in Chinese character and is used as the first, middle and last strokes in many words, e.g. '上', '用', etc. Adding two dots at both sides will arrive at '小', which is the character component in '雨', '要', etc. This letter is the twin brother of the English alphabet 'I';

J= 亅

Named 'vertical left hook' (豎勾), this letter is the first stroke in character such as '亅', '水', etc. Adding a horizontal stroke on it will come to '寸', which is the first stroke for '寸' and '才', and the last stroke for '子'. This letter is also the twin of the alphabet 'J'.

K= 𠂉

This letter is called 'zigzag' (曲) and has the same shape as '𠂉' and '乀'. This is used as the first stroke in '幺' and '女', and as the last stroke in '衣' and '水', etc;

L= 乚

Named 'left bottom corner' (左下角), this letter is frequently used as the first stroke in '疑','肆' etc. and as last stroke in '匹' with a hook at the end, '乚' is also represented by 'L' and is used in '也', '乜', and '電' as the last stroke. It is the twin brother of the alphabet 'L';

M= 𠂆

This letter is called 'vertical-horizontal stroke' (丩) or 'dot-horizontal stroke' (𠂆) and is used in '言' as the first stroke, in '青' as the second and last strokes. In ancient Chinese character '𠂆' is written as '二' and therefore '二' is also represented by this letter. These are written as '𠂆' in guwen (古文) in the shape of a hat—similar to that of the alphabet; 𠂆

N= 𠂉

Having the shape of a boat, this letter is the Chinese stroke (艇) and is used only as the last stroke e.g. 之、道、送, etc. It is the twin brother of the alphabet 'N';

O= 口

This letter '口' is used as the first stroke in 吠、员, and as the last stroke in 高. It also has a high frequency of usage and is the twin of 'O';

P= 卩

Termed 'right top corner' (右上角) in Chinese character, this letter also represents three other components '冂', '冖', and '卩'. It is used as the first stroke in 段、事、門, etc. and is the twin of 'P';

Q= 丶

This is called 'dot' (點) and has a wide and frequent usage in Chinese character, e.g. first stroke for 之、六、冫, and last stroke for 犬、太、戈, etc.;

R= 乀

In Chinese this is called (捺). It is only used as the last stroke, e.g. 爻、爪、入、建 etc. It has the same shape of the last stroke of the alphabet 'R';

S= 亅

This is called 'horizontal-vertical hook' (橫豎鉤) or 厥 in ancient Chinese language. Of the same class is 刁. Characters for which it is used as the first stroke are 刀、司, etc., and for which it is used as the last stroke are 門、豕, etc. It also has a similar shape to the end part of the alphabet 'S';

T= 一

The 'horizontal stroke' (橫) is the most widely and frequently used component in Chinese character, e.g. first stroke for 雨、右, etc., and last stroke for 旦、量, etc. It is the first stroke for the alphabet 'T';

U= 凵

This is named (凹) and the reciprocal is '冂'. There are four other fellow components in the same class, namely '冂', '冂', '冂', and '几'. The component is '凵' commonly seen in character such as 山 and 出 as the last stroke; while '冂', '冂', '冂' and '几' are used as the first stroke for the words 冗、同、用 and 凰 respectively;

V= ✓

This letter is called 'tick' (挑) and is used in characters such as 刁、打, etc. Adding a dot on top of it will result in its fellow component '冫', which is used in such words as 冶、冰、求, etc;

W= 八

This is the Chinese character 'eight' (八) which can be used on its own. Its reciprocal form of writing is '丷'. Used as the first stroke in Chinese character, they are interchangeable, e.g. 曾 and 酋 can be written as 曾 and 酋 respectively. However, when being used as the last stroke, only '八' can be used, e.g. 共、典 etc. It is represented by the alphabet 'W' due to its similar shape to the middle part of the latter;

X= 乂

Named 'cross' (文义), this component is used as the first stroke in characters like '凶' '有' etc., and as the last stroke in characters such as '父' and '交'. Its fellow component is '夂' which is used in '变' and '友' as the last stroke and in '冬' as the first stroke. This letter is the twin of the alphabet 'X';

Y= 丿

This is called (撇) in Chinese character and has a high frequency of usage. It is used as the first stroke in '毛' '危' '须', etc., and as the last stroke in '少' '彩', etc. It has a shape similar to the last stroke of the alphabet 'Y'; and

Z= 乙

The character (乙) is also used solely as a first stroke in other characters such as '也' '乱' and '飞'. It is the twin of the alphabet 'Z'.

The component symbols shown in row III of Fig. 1 are modified versions of the Jackson 26 symbols. These modified versions enable the Jackson 26 system of component symbols to be used for coding the characters of Japanese and Korean.

The Jackson 26 system of component symbols can be used for generating codes representative of ideographic characters so that by keying in the code into a computer word processor the ideograpghic character corresponding to that code can be printed. The Jackson 26 system enables Chinese characters to be coded by letters of the Roman alphabet. The Jackson 26 system enables virtually any Chinese ideographic character to be coded with five or fewer Roman letters. So that in some circumstances a very simple Chinese character may only need one letter code while a more complicated character may need up to five Roman letters to code it.

In order to construct a code for a particular Chinese character the following rules must be applied.

First of all the characters must be inspected so that its component symbols can be identified. For inseparable characters, the first four components of the character which correspond to symbols of the Jackson 26 system and their sequence are identified. The sequence in which the symbols occur in the character corresponds to the sequence in which the five letters of the character code are written. The fifth letter of the code is taken to correspond to the last symbol of the character.

For separable characters a code is constructed by identifying the first and last symbols contained within the left component of the character. These two symbols correspond to the first two letters of the final five letter code. However, if one of the Jackson 26 symbols is enough to define the entire left component, the remaining letters of the code are derived from the right component of the character. The remaining three letters of the code correspond to the first two and the last symbols contained within the right component of the ideographic character.

In order to minimise ambiguity and redundancy when coding Chinese characters with the above-mentioned rules, it is necessary to impose two supplementary rules to minimise the risk that the same code may be derived for two different Chinese characters.

The first supplementary rule is applied in the case when a component of a Chinese character can be represented by more than one combination of symbols of the Jackson 26 system. If for example the component can be coded by two or three symbols of the Jackson 26 system, then the rule is to take the least number of symbols which in this case would be two. This means that the resulting Roman letter code would consist of two letters for this component. For example take the ideographic character '金' for instance. The first stroke '丿' can be coded by "Y" and the second '亼' by "R". However, '丿' and '亼' together become '人' and can be coded by "A". Choosing the bigger means that "A" should be used to form a code rather than "Y" and "R".

The second supplementary rule applies only to separable characters. In some cases a Chinese character may be divisible into left and right components in more than one way thereby leading

to a choice or left components which each comprise a different number of symbols of the Jackson 26 system. For example '鵬' can be either '月' as left component and '鳥' as right component, or '朋' as left component and '鳥' as right component. The second supplementary rule requires that the smaller left component is taken and hence the second option is ruled out.

Once the five letter Roman letter code has been formed in accordance with the rules above it may be keyed into a computer word processor via a keyboard on which the symbols and/or Roman letters are provided.

Fig. 2a shows how long a Roman letter code would be if the aforementioned rules were not applied. In the four examples illustrated in Fig. 2a, every Jackson 26 symbol contained within the character is represented by a Roman letter positioned in accordance with the sequence in which the Jackson 26 symbol occurs within the character. By applying the rules discussed above a short code of five Roman letters or fewer can be constructed to represent a Chinese character. Four examples of codes for different Chinese characters are illustrated in Fig. 2b.

Fig. 2c illustrates a number of codes which have been formed for separable characters of the Chinese language and Fig. 2 illustrates a number of codes which have been formed for inseparable Chinese characters.

Empirical evidence has shown that the above-discussed coding system can be effected with only five letters of the Roman alphabet. This coding system makes substantial savings of space possible. Statistical analysis has revealed that in the Jackson 26 system the duplication rate is very low (i.e. the rate at which the same codes are derived for different Chinese charcters) and is of the order of only 3.7%. The characters of the Japanese and Korean languages can be formed in a similar manner using the Jackson 26 system of symbols and the input system described above. Examples of letter codes formed for Japanese and Korean characters are illustrated in Figs. 3a and 3b respectively. In a similar manner, Jackson letter codes may be formed for characters of other languages. In particular, since the Jackson 26 system of symbols corresponds to the 26 letters of the Roman alphabet, English, French, German, Russian, Italian, Greek, Latin and other languages may be word processed using the same input keyboards.

Fig. 4 shows an example of a QWERTY type keyboard the keys of which have been modified to accomodate the symbols of the Jackson 26 system. As can be seen by comparing these symbols with the symbols illustrated in Fig. 1, the keys of Fig. 4 correspond to the Roman letters of the QWERTY type keyboard. Some of the keys shown in Fig. 4 have several symbols thereon. The alternative symbols are to enable ideographic languages other than Chinese to be word processed on the computer system to which the keyboard of Fig. 4 is attached.

Fig. 5 shows an alternative layout of QWERTY keyboard. In this case the individual keys of the keyboard bear a letter of the Roman alphabet but each letter is modified to represent also one of the symbols of the Jackson 26 system.

Fig. 6 shows a third alternative keyboard, the keys of which bear the letters of the Roman alphabet in addition to symbols of the Jackson 26 system.

Each of the keyboards shown in Figs. 4 to 6 may be connected to a computer word processing system which houses a memory containing the characters of the languages for which the word processor is programmed to process. By keying in the appropriate codes and instructing the computer processing unit to access the appropriate memory, the keyboard may be used for word processing ideographic or phonetic languages.

CLAIMS

1. A method of ideographic character input for a processing system comprising:

identifying from a predetermined system of component symbols, for inseparable ideographic characters, the fewest component symbols and their sequence of up to the first four and the last component symbols contained in the ideographic character;

forming a code representative of the inseparable ideographic character in dependence upon the identified component symbols;

identifying from the predetermined system of component symbols, for separable ideographic characters, left and right components wherein the left component is smaller than the right component if they contain differing numbers of component symbols, and then identifying at least the first component symbol contained in the left component and up to the first two and the last

component symbols of the right component;

forming a code representative of the separable ideographic character in dependence upon the identified component symbols; and

feeding the codes into a processing system.

2. A method of ideographic character input according to claim 1, wherein, in the case where the left component of the separable ideographic character has more than one component symbol, the first and last symbols are identified and the code is formed in dependence thereon.

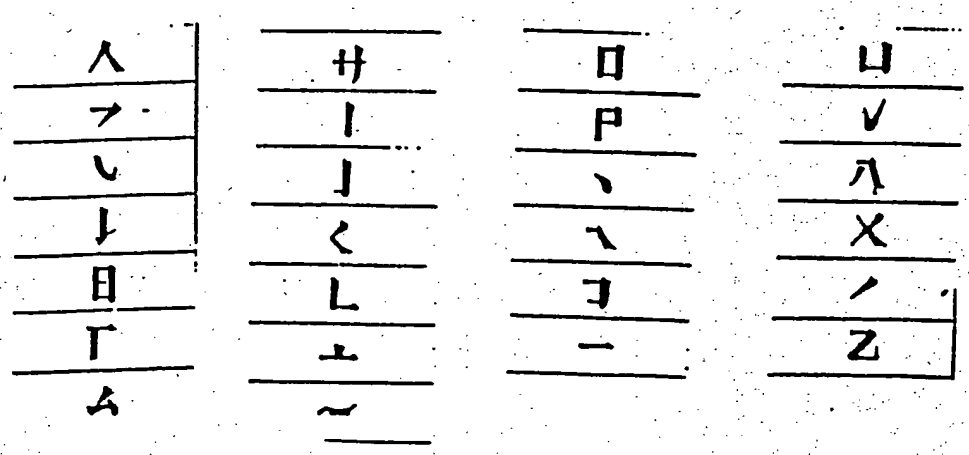
3. A method of ideograpic character input according to claim 1 or claim 2, wherein the code representative of the inseparable or separable characters consists of five or fewer code symbols depending on the number of identified component symbols in the character.

4. A method of ideographic character input according to claim 1, claim 2 or claim 3, wherein the predetermined system of component symbols is a "Jackson system" which provides for the coding of ideographic characters.

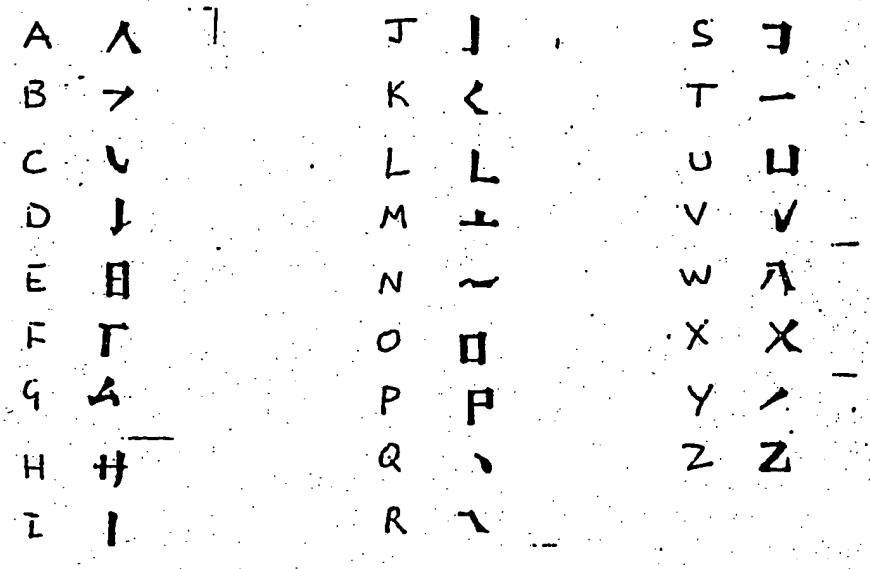
5. A method of ideographic character input according to claim 4, wherein the component symbols of the "Jackson system" correspond to the letters of the Roman alphabet so as to enable the ideograpic characters to be coded on an English language "QWERTY" type keyboard.

6. A method of ideographic character input according to any one of the preceeding claims, wherein the ideographic characters are those of the Chinese, Japanese or Korean languages.

7. A keyboard for use in an input system for ideographic characters, wherein the keyboard comprises a predetermined system of component symbols whereby codes representative of the ideographic characters may be fed into a word or data processing system, and wherein the component symbols are:

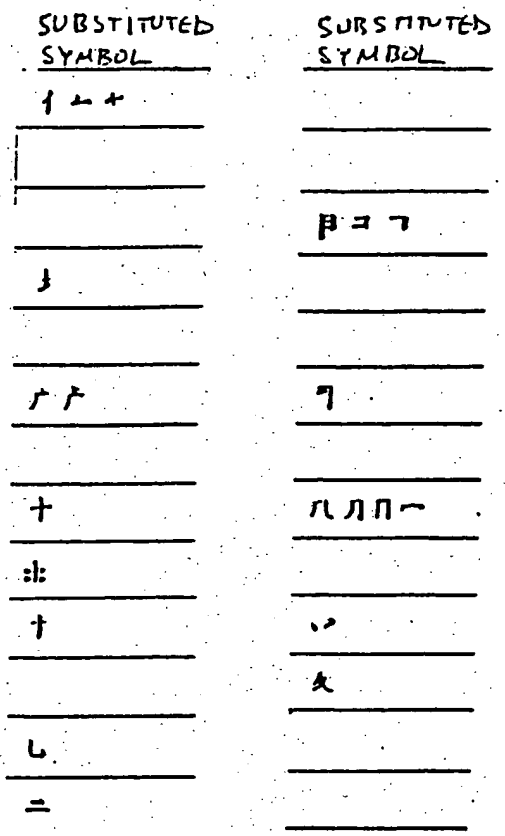


8. A keyboard according to claim 7, wherein the component symbols respectively correspond to the letters of the Roman alphabet, and their correspondence with the Roman alphabet is as follows:



9. A keyboard according to claim 7 or claim 8, wherein the ideographic characters are those of the Chinese language.

10. A keyboard according to claim 7 or claim 8, wherein corresponding component symbols of the predetermined system are replaced by the following component symbols thereby enabling the ideographic characters to be those of the Japanese or Korean languages:



11. A keyboard according to any one of claims 7 to 10, wherein the keyboard corresponds to the Qwerty type keyboard thereby enabling the ideographic and phonetic languages to be processed.

12. A method of ideographic character input according to claim 1, substantially as described herein.

13. A keyboard for use in an input signal for ideographic characters substantially as herein described herein with reference to Figs. 1, 4, 5 or 6 of the accompanying drawings.

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